

ABSTRACT

A semiconductor package includes a semiconductor chip having a major surface and first pads formed on the major surface. The semiconductor package also includes a package substrate having (a) opposite first and second major surfaces, (b) a side surface extending between the first and second major surfaces, (c) a pad forming region adjacent to and along the side surface, (d) second pads formed on the pad forming region, (e) external electrodes formed on the first major surface of the package substrate, wherein the second major surface of the package substrate is fixed to the major surface of the semiconductor chip, and wherein the external electrodes are electrically connected to the second pads. The semiconductor package further includes bonding wires electrically connecting the first pads to the second pads and a sealing material covering the bonding wires and first and second pads.